



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: TAUBER et. al

Application Serial No.: 10/785,510

5 Application Filed: February 17, 2004

Attorney Docket No.: CECOM 5522

For: RARE EARTH METAL COMPOUNDS FOR USE IN HIGH CRITICAL  
TEMPERATURE THIN FILM SUPER-CONDUCTING ANTENNAS

10

AMENDMENTS TO THE CLAIMS

Sir:

In accordance with the enclosed Remarks, please amend the claims in the above-identified  
application as follows:

15

1-47 (Canceled)

20

48. (Previously Presented) ~~An~~ A high  $T_c$  superconducting antenna, comprising:  
a single layer of a copper oxide superconductor deposited onto a single crystal substrate  
of the formula  $Sr_2LuSbO_6$ ;

25

said single crystal substrate being heated for at least 20 hours at ~~between 1400° C and~~  
1600 ° C;

said single crystal substrate being constructed in a bulk form;

said single crystal substrate having an ordered perovskite cubic crystalline structure;

said single crystal substrate having a low dielectric constant of 15.1;

said single crystal substrate having a low dielectric loss of less than  $1 \times 10^{-3}$  without a  
phase transition;

said formula including an  $Sb^{5+}$  constituent atom with a polarizability of about  $1.2 \text{ \AA}^3$ ; and

said single layer of the copper oxide superconductor being patterned to complete the

30

device.

49-79 (Canceled)

80. (Previously Presented) A high  $T_c$  superconducting~~An antenna device~~, comprising:

a single layer of a copper oxide superconductor deposited onto a substrate;

5 said substrate having a buffered layer with the formula  $\text{Sr}_2\text{LuSbO}_6$ ;

said buffered layer being heated for at least 20 hours at ~~between 1400 ° C and 1600 ° C~~;

said buffered layer having an ordered perovskite cubic crystalline structure;

said buffered layer having a low dielectric constant of 15.1;

said buffered layer having a low dielectric loss of less than  $1 \times 10^{-3}$  without a phase

10 transition;

said formula including an  $\text{Sb}^{5+}$  constituent atom with a polarizability of about  $1.2 \text{ \AA}^3$ ; and

said single layer of the copper oxide superconductor being patterned to complete the device.